

## WEST Search History

DATE: Wednesday, March 10, 2004

<u>Hide?</u>	<u>Set Name</u>	<u>Query</u>	<u>Hit Count</u>
		<i>DB=USPT; PLUR=YES; OP=ADJ</i>	
<input type="checkbox"/>	L5	epigallocatechin gallate	155
<input type="checkbox"/>	L4	epigallocatechin	205
<input type="checkbox"/>	L3	L2 and antioxidant	1
<input type="checkbox"/>	L2	6395701.pn.	1
<input type="checkbox"/>	L1	viscosity same mpas and detergent and antioxidant and cleaning	42

END OF SEARCH HISTORY

First Hit   Fwd Refs☐ **Generate Collection** **Print**

L16: Entry 19 of 31

File: USPT

May 8, 2001

DOCUMENT-IDENTIFIER: US 6228821 B1

TITLE: Cleaning composition having enhanced fragrance and method of enhancing fragrance

Abstract Text (1):

A cleaning composition includes ingredients useful for formulating laundry and cleaning compositions selected from the group consisting of cationic or nonionic fabric softening agents, deterative surfactants, builders, bleaching compounds, polymeric soil release agents, dye transfer inhibiting agents, polymeric dispersing agents, suds suppressors, optical brighteners, chelating agents, fabric softening clays, anti-static agents, and mixtures thereof; an enzyme; a perfume; and an effective amount of a stabilizer to provide an enhanced perfume effect. The stabilizer is selected from the group of antioxidants, reducing agents, and mixtures thereof.

Brief Summary Text (3):

These enzymes are usually incorporated in the form of granules so as not to lose their activity during storage and to sufficiently exhibit their activities during use. The enzymatic stability of such enzyme-containing granulated products decreases when the granulated products are blended with bleaching agents, surfactants, builders for detergents, or similar materials.. In particular, it is known that enzyme activity decreases considerably when a granulated product is blended with a bleaching agent.

Brief Summary Text (5):

Another drawback to the use of enzymes in cleaning compositions is the unpleasant odor that such enzymes contribute. Likewise, the feedstocks in which the enzymes are usually contained and delivered also contribute to unpleasant odors. These enzymes and their feedstocks are complex mixtures obtained from fermentation processes and they typically contain many offensive odor contaminants that ultimately find their way into the cleaning compositions in which the enzymes are included. The resulting malodors in such cleaning compositions do not appeal to consumers. Additionally, the detergency enzymes have a tendency to leave residual odors on fabrics when, for example, the cleaning composition is a detergent composition. These residual odors lead to consumer dissatisfaction.

Brief Summary Text (6):

In addition, the detergent raw materials can contribute unpleasant or undesirable odors to the compositions as well as to fabrics. As the compositions age, these odors can become more pronounced.

Brief Summary Text (13):

h   e b   b g e e c f   c   e g b f

In accordance with the present invention, a novel cleaning composition is provided that includes cleaning ingredients useful for formulating cleaning compositions, an enzyme, a perfume, and an effective amount of a stabilizer to provide an enhanced perfume effect, such that the stabilizer is selected from the group of antioxidants, reducing agents, and mixtures thereof. The cleaning ingredients useful for formulating cleaning compositions are selected from the group consisting of cationic or nonionic fabric softening agents, detergent surfactants, builders, bleaching compounds, polymeric soil release agents, dye transfer inhibiting agents, polymeric dispersing agents, suds suppressors, optical brighteners, chelating agents, fabric softening clays, anti-static agents, and mixtures thereof.

Brief Summary Text (14):

The cleaning compositions include laundry and dishwashing detergents, hard surface cleaners, and other types of cleaners having cleaning composition ingredients and enzymes. The cleaning composition can be a powder or may be a liquid.

Brief Summary Text (15):

In general, where the cleaning composition is in a powder form the cleaning ingredients comprise the majority amount of the cleaning compositions. In this case, the cleaning ingredients comprise from about 5% to about 99% of the cleaning composition. Where the cleaning composition is in a liquid form, a liquid carrier is present in typical amounts from about 40% to about 90% of the cleaning composition. In this case, the cleaning ingredients comprise the majority of the remaining ingredients.

Brief Summary Text (23):

The cleaning compositions of the present invention include liquid, granular, and bar laundry and cleaning products, which are typically used for laundering fabrics and cleaning hard surfaces such as dishware and other surfaces in need of cleaning and/or disinfecting.

Brief Summary Text (24):

The cleaning ingredients useful in the cleaning compositions of the present invention include but are not limited to cationic or nonionic fabric softening agents, detergent surfactants, builders, bleaching compounds, polymeric soil release agents, dye transfer inhibiting agents, polymeric dispersing agents, suds suppressors, optical brighteners, chelating agents, fabric softening clays, anti-static agents, and mixtures thereof. The particular ingredients will be described in more detail below after the description of the enzymes, fragrance, and stabilizers.

Brief Summary Text (26):

Enzymes can be included in the compositions of the present invention for a variety of purposes, including removal of protein-based, carbohydrate-based, or triglyceride-based stains from surfaces such as textiles or dishes, for the prevention of refugee dye transfer, for example in laundering, and for fabric restoration. Suitable enzymes include proteases, amylases, lipases, cellulases, peroxidases, and mixtures thereof of any suitable origin, such as vegetable, animal, bacterial, fungal and yeast origin. Preferred selections are influenced by factors such as pH-activity and/or stability optima, thermostability, and stability to active detergents, builders and the like. In this respect bacterial or fungal enzymes are preferred, such as bacterial

amylases and proteases, and fungal cellulases.

Brief Summary Text (28):

Suitable examples of proteases include pepsin, trypsin, chymotrypsin, collagenase, keratinase, elastase, subtilisin, papain, aminopeptidase, and carboxypeptidase. For example, the subtilisins may be obtained from particular strains of *B. subtilis* and *B. licheniformis*. One suitable protease is obtained from a strain of *Bacillus*, having maximum activity throughout the pH range of 8-12, developed and sold as ESPERASE.RTM. by Novo Industries A/S of Denmark, hereinafter "Novo". The preparation of this enzyme and analogous enzymes is described in GB 1,243,784 to Novo. Other suitable proteases include ALCALASE.RTM. and SAVINASE.RTM. from Novo and MAXATASE.RTM.; as well as Protease A as disclosed in EP 130,756 A and Protease B as disclosed in EP 303,761 A and EP 130,756 A. A high pH protease from *Bacillus* sp. NCIMB 40338 described in WO 9318140 A to Novo may also be useful. Enzymatic detergents comprising protease, one or more other enzymes, and a reversible protease inhibitor are described in WO 9203529 A to Novo. A recombinant trypsin-like protease for detergents suitable herein is described in WO 9425583 to Novo.

Brief Summary Text (31):

These amylases share the characteristic of being "stability-enhanced" amylases, characterized, at a minimum, by a measurable improvement in one or more of: oxidative stability, e.g., to hydrogen peroxide/tetraacetylenediandne in buffered solution at pH 9-10; thermal stability, e.g., at common wash temperatures such as about 60.degree. C.; or alkaline stability, e.g., at a pH from about 8 to about 11, measured versus the above-identified reference-point amylase. Stability can be measured using any of the art-disclosed technical tests. See, for example, references disclosed in WO 9402597. Stability-enhanced amylases can be obtained from Novo or from Genencor International. One class of highly preferred amylases herein have the commonality of being derived using site-directed mutagenesis from one or more of the *Bacillus* amylases, especially the *Bacillus* .alpha.-amylases, regardless of whether one, two or multiple amylase strains are the immediate precursors. Oxidative stability-enhanced amylases versus the above-identified reference amylase may be preferred for use, especially in bleaching, more preferably oxygen bleaching, as distinct from chlorine bleaching, detergent compositions herein.

Brief Summary Text (32):

Such preferred amylases may include (a) an amylase according to WO 9402597, as further illustrated by a mutant in which substitution is made, using alanine or threonine, preferably threonine, of the methionine residue located in position 197 of the *B. licheniformis* alpha-amylase, known as TERMAMYL.RTM., or the homologous position variation of a similar parent amylase, such as *B. amyloliquefaciens*, *B. subtilis*, or *B. stearothermophilus*; (b) stability-enhanced amylases as described by Genencor International in a paper entitled "Oxidatively Resistant alpha-Amylases" presented at the 207th American Chemical Society National Meeting, Mar. 13-17 1994, by C. Mitchinson. It was noted that bleaches in automatic dishwashing detergents inactivate alpha-amylases but that improved oxidative stability amylases have been made by Genencor from *B. licheniformis* NCIB8061. Methionine (Met) was identified as the most likely residue to be modified. Met was substituted, one at a time, in positions 8, 15, 197, 256, 304, 366 and 438 leading to specific mutants, particularly important being M197L and M197T with the M197T

variant being the most stable expressed variant. Stability was measured in CASCADE.RTM. and SUNLIGHT.RTM.; (c) amylase variants having additional modification in the immediate parent as described in WO 9510603 A are available from Novo as DURAMYL.RTM.. Other oxidative stability enhanced amylase include those described in WO 94183 14 to Genencor International and WO 9402597 to Novo. Any other oxidative stability-enhanced amylase may be used, for example as derived by site-directed mutagenesis from known chimeric, hybrid or simple mutant parent forms of available amylases. Other preferred enzyme modifications are accessible. See WO 9509909 A to Novo.

Brief Summary Text (33):

Cellulases usable herein include both bacterial and fungal types, preferably having a pH optimum between 5 and 9.5. U.S. Pat. No. 4,435,307, Barbesgaard et al, discloses suitable fungal cellulases from Humicola insolens or Humicola strain DSM1800 or a cellulase 212-producing fungus belonging to the genus Aeromonas, and cellulase extracted from the hepatopancreas of a marine mollusk, Dolabella Auricula Solander. Suitable cellulases are also disclosed in GB-A-2.075.028; GB-A-2.095.275 and DE-OS-2.247.832. CAREZYME.RTM. (Novo) may also be useful.

Brief Summary Text (35):

Suitable lipase enzymes for detergent usage include those produced by microorganisms of the Pseudomonas group, such as Pseudomonas stutzeri ATCC 19.154, as disclosed in GB 1,372,034. See also lipases in Japanese Patent Application 53,20487. This lipase is available from Amano Pharmaceutical Co. Ltd., Nagoya, Japan, under the trade name Lipase P "Amano," or "Amano-P." Other suitable commercial lipases may include Amano-CES, lipases ex Chromobacter viscosum, e.g. Chromobacter viscosum vat. lipolyticum NRRLB 3673 from Toyo Jozo Co., Tagata, Japan; Chromobacter viscosum lipases from U.S. Biochemical Corp., U.S.A. and Disoynth Co., The Netherlands, and lipases ex Pseudomonas gladioli. LIPOLASE.RTM. enzyme derived from Humicola lanuginosa and commercially available from Novo, see also EP 341,947, may be used. Lipase and amylase variants stabilized against peroxidase enzymes are described in WO 9414951 A to Novo.

Brief Summary Text (37):

Peroxidase enzymes may be used in combination with oxygen sources, e.g., percarbonate, perborate, hydrogen peroxide, etc., for "solution bleaching" or prevention of transfer of dyes or pigments removed from substrates during the wash to other substrates present in the wash solution. Known peroxidases include horseradish peroxidase, ligninase, and haloperoxidases such as chloro- or bromo-peroxidase. Peroxidase-containing detergent compositions are disclosed in WO 89099813 A, to Novo and WO 8909813 A to Novo.

Brief Summary Text (38):

A range of enzyme materials and means for their incorporation into synthetic detergent compositions is also disclosed in WO 9307263 A and WO 9307260 A to Genencor International, WO 8908694 A to Novo, and U.S. Pat. No. 3,553,139. Enzymes are further disclosed in U.S. Pat. No. 4,101,457 and in U.S. Pat. No. 4,507,219. Enzyme materials useful for liquid detergent formulations, and their incorporation into such formulations, are disclosed in U.S. Pat. No. 4,261,868. Enzymes for use in detergents can be stabilized by various techniques. Enzyme stabilization techniques are disclosed and exemplified in U.S. Pat. No. 3,600,319, EP 199,405 and EP 200,586. Enzyme stabilization

systems are also described, for example, in U.S. Pat. No. 3,519,570. A useful *Bacillus*, sp. AC13 giving proteases, xylanases and cellulases, is described in WO 9401532 A to Novo.

Brief Summary Text (50):

Examples of reducing agents include alkali metal salts (such as sodium salts and potassium salts) and alkaline earth metal salts (such as calcium salts and magnesium salts) of boric acid, sulfurous acid, thiosulfuric acid, etc. Specifically, sodium tetraborate, sodium sulfite, and sodium thiosulfate may be used. Specific examples of antioxidants include ascorbic acid, sodium ascorbate, erythorbic acid, sodium erythorbate, dl-.alpha.-tocopherol, isopropyl citrate, butylated hydroxytoluene (BHT), butylated hydroxyanisol (BHA), tannic acid, and sulfur-containing antioxidants.

Brief Summary Text (55):

As noted above, the cleaning ingredients useful in the cleaning compositions of the present invention include but are not limited to cationic or nonionic fabric softening agents, deterative surfactants, builders, bleaching compounds, polymeric soil release agents, dye transfer inhibiting agents, polymeric dispersing agents, suds suppressors, optical brighteners, chelating agents, fabric softening clays, anti-static agents, and mixtures thereof. In general, these cleaning ingredients are known to those of skill in the art. In addition, one of skill in the art will understand how to incorporate such cleaning ingredients in cleaning compositions.

Brief Summary Text (56):

Surfactants

Brief Summary Text (57):

Deterative surfactants can be included in the compositions of the present invention. Such compositions may comprise at least 1%, preferably from about 1% to about 99.8%, by weight of surfactant depending upon the particular surfactants used and the effects desired. In a highly preferred embodiment, the deterative surfactant comprises from about 5% to about 80% by weight of the composition.

Brief Summary Text (58):

The deterative surfactant can be nonionic, anionic, ampholytic, zwitterionic, or cationic. Mixtures of these surfactants can also be used. Preferred detergent compositions comprise anionic deterative surfactants or mixtures of anionic surfactants with other surfactants, especially nonionic surfactants. Nonlimiting examples of surfactants useful herein include the conventional C.sub.11 -C.sub.18 alkyl benzene sulfonates and primary, secondary and random alkyl sulfates, the C.sub.10 -C.sub.18 alkyl alkoxy sulfates, the C.sub.10 -C.sub.18 alkyl polyglycosides and their corresponding sulfated polyglycosides, C.sub.12 -C.sub.18 alpha-sulfonated fatty acid esters, C.sub.12 -C.sub.18 alkyl and alkyl phenol alkoxyates (especially ethoxyates and mixed ethoxy/propoxy), C.sub.12 -C.sub.18 betaines and sulfobetaines ("sultaines"), C.sub.10 -C.sub.18 amine oxides, and the like. Other conventional useful surfactants are listed in standard texts and are identified in McCutcheons, the relevant portions of which are incorporated herein by reference.

Brief Summary Text (59):

One class of nonionic surfactant particularly useful in detergent compositions of the present invention is condensates of ethylene oxide with a hydrophobic moiety to provide a surfactant having an average hydrophilic-lipophilic balance (HLB) in the range of from 5 to 17, preferably from 6 to 14, more preferably from 7 to 12. The hydrophobic (lipophilic) moiety may be aliphatic or aromatic in nature. The length of the polyoxyethylene group that is condensed with any particular hydrophobic group can be readily adjusted to yield a water-soluble compound having the desired degree of balance between hydrophilic and hydrophobic elements.

Brief Summary Text (60):

Especially preferred nonionic surfactants of this type are the C.sub.6 - C.sub.18 primary or secondary alcohol ethoxylates containing 3-8 moles of ethylene oxide per mole of alcohol. Another suitable class of nonionic surfactants comprises the polyhydroxy fatty acid amides of the formula:

Brief Summary Text (63):

Detergent builders can optionally be included in the compositions herein to assist in controlling mineral hardness. Inorganic as well as organic builders can be used. Builders are typically used in fabric laundering compositions to assist in the removal of particulate soils.

Brief Summary Text (64):

The level of builder can vary widely depending upon the end use of the composition and its desired physical form. When present, the compositions will typically comprise at least about 1% builder. Liquid formulations typically comprise from about 5% to about 50%, more typically about 5% to about 30%, by weight, of detergent builder. Granular formulations typically comprise from about 10% to about 80%, more typically from about 15% to about 50% by weight, of the detergent builder. Lower or higher levels of builder, however, are not meant to be excluded.

Brief Summary Text (65):

Inorganic or P-containing detergent builders include, but are not limited to, the alkali metal, ammonium and alkanolammonium salts of polyphosphates (exemplified by the tripolyphosphates, pyrophosphates, and glassy polymeric metaphosphates), phosphonates, phytic acid, silicates, carbonates (including bicarbonates and sesquicarbonates), sulphates, and aluminosilicates. However, non-phosphate builders are required in some locales.

Brief Summary Text (71):

Organic detergent builders suitable for the purposes of the present invention include, but are not restricted to, a wide variety of polycarboxylate compounds. As used herein, "polycarboxylate" refers to compounds having a plurality of carboxylate groups, preferably at least 3 carboxylates. Polycarboxylate builder can generally be added to the composition in acid form, but can also be added in the form of a neutralized salt. When utilized in salt form, alkali metals, such as sodium, potassium, and lithium, or alkanolammonium salts are preferred.

Brief Summary Text (74):

Citrate builders, e.g., citric acid and soluble salts thereof (particularly sodium salt), are polycarboxylate builders of particular importance for heavy-duty liquid detergent formulations due to their availability from

renewable resources and their biodegradability. Citrates can also be used in granular compositions, especially in combination with zeolite and/or layered silicate builders. Oxydisuccinates are also especially useful in such compositions and combinations.

Brief Summary Text (79):

When the cleaning composition of the present invention is provided in a powder or granulated form, it may contain, in addition to the above-mentioned components, other ingredients needed for granulation. Such additives include binders, particularly water-soluble organic binders. The following may be cited as examples of water-soluble organic binders that may be used together with the mentioned essential components of the present invention: (a) water-soluble polymers selected from the group consisting of polyethylene glycol having a melting point of not lower than 35.degree. C., derivatives thereof, and polyoxyethylene polyoxypropylene copolymers; (b) nonionic surfactants having a melting point or pour point of not lower than 35.degree. C.; and (c) polycarboxylates having a mean molecular weight of not less than 4,000. These may be used singly, or in combinations of two or more.

Brief Summary Text (80):

Specific examples of particularly preferred water-soluble organic binders include, among the class of polyethylene glycol and its derivatives (a), polyethylene glycol, polyethylene glycol sulfate, and methoxypolyethylene glycol; among the class of nonionic surfactants (b), polyoxyethylene alkyl ethers; and among the class of polycarboxylates (c), alkali metal salts of polyacrylic acid, acrylic acid/maleic acid copolymers, and polyacetal carboxylate.

Brief Summary Text (82):

According to the present invention, powdery bulking agents may also be added if needed. Exemplary bulking agents include one or more inorganic salts selected from the group consisting of sulfates, carbonates, and hydrochlorides of alkali metals or alkaline earth metals. Of these, water-soluble inorganic alkali metal salts such as sodium sulfate, sodium carbonate, and sodium chloride are particularly preferred in view that they do not adversely affect detergent power. Other useful bulking agents include water-soluble organic salts such as sodium citrate; talc, titanium oxide, calcium carbonate, zeolite, magnesium carbonate, activated clay, and kaolin.

Brief Summary Text (83):

The cleaning compositions of the present invention may also contain a variety of inorganic salts such as calcium salts and magnesium salts; as well as organic materials including surfactants, saccharides, and carboxymethylcellulose.

Brief Summary Text (84):

Optionally, the compositions of the present invention may contain from 0% to about 10%, preferably from about 0.1% to about 5%, more preferably from about 0.1% to about 2%, of a soil release agent. Such a soil release agent may be a polymer. Polymeric soil release agents useful in the present invention may include copolymeric blocks of terephthalate and polyethylene oxide or polypropylene oxide, and the like. These agents may give additional stability to concentrated aqueous, liquid compositions. Therefore, their presence in such liquid compositions, even at levels that do not provide soil release



benefits, may be advantageous.

Brief Summary Text (86):

in which X can be any suitable capping group, with each X being selected from the group consisting of H, and alkyl or acyl groups containing from about 1 to about 4 carbon atoms, preferably methyl, n is selected for water solubility and generally is from about 6 to about 113, preferably from about 20 to about 50, and u is critical to formulation in a liquid composition having a relatively high ionic strength. There should be very little material in which u is greater than 10. Furthermore, there should be at least 20%, preferably at least 40%, of material in which u ranges from about 3 to about 5.

Brief Summary Text (89):

The compositions herein may optionally contain bleaching agents or bleaching compositions containing a bleaching agent and one or more bleach activators. When present, bleaching agents will typically be at levels of from about 1% to about 30%, more typically from about 5% to about 20%, of the detergent composition, especially for fabric laundering. If present, the amount of bleach activators will typically be from about 0.1% to about 60%, more typically from about 0.5% to about 40% of the bleaching composition comprising the bleaching agent-plus-bleach activator.

Brief Summary Text (93):

An example of a preferred percarbonate bleach can comprise dry particles having an average particle size in the range from about 500 micrometers to about 1,000 micrometers, not more than about 10% by weight of said particles being smaller than about 200 micrometers and not more than about 10% by weight of said particles being larger than about 1,250 micrometers. Optionally, the percarbonate can be coated with silicate, borate, or water-soluble surfactants. Percarbonate is available from various commercial sources such as FMC, Solvay, and Tokai Denka.

Brief Summary Text (103):

Other preferred optional ingredients include polymeric soil release agents, materials effective for inhibiting the transfer of dyes from one fabric to another during the cleaning process (i.e., dye transfer inhibiting agents), polymeric dispersing agents, suds suppressors, optical brighteners or other brightening or whitening agents, chelating agents, fabric softening clay, anti-static agents, other active ingredients, carriers, hydrotropes, processing aids, dyes or pigments, solvents for liquid formulations, solid fillers for bar compositions, bacteriocides, colorants, perfumes, preservatives, opacifiers, stabilizers such as guar gum and polyethylene glycol, anti-shrinkage agents, anti-wrinkle agents, fabric crisping agents, spotting agents, germicides, fungicides, anti-corrosion agents, and the like.

Brief Summary Text (104):

Liquid compositions of the present invention may include a liquid carrier. The liquid carrier used in the present compositions is preferably at least primarily water due to its low cost, relative availability, safety, and environmental compatibility. The level of water in the liquid carrier is preferably at least about 50%, most preferably at least about 80%, by weight of the carrier. The level of liquid carrier is greater than about 50%,

preferably greater than about 65%, more preferably greater than about 70%. Mixtures of water and low molecular weight, e.g., less than about 200, organic solvent, e.g., lower alcohols such as ethanol, propanol, isopropanol or butanol are useful as the carrier liquid. Low molecular weight alcohols include monohydric, dihydric (glycol, etc.) trihydric (glycerol, etc.), and higher polyhydric (polyols) alcohols.

Brief Summary Text (105):

If the composition of the present invention includes a detergent or surfactant, the compositions herein will preferably be formulated such that, during use in aqueous cleaning operations, the wash water will have a pH of between about 6.5 and about 11, preferably between about 7.5 and 10.5. Laundry products are typically at pH 9-11. Techniques for controlling pH at recommended usage levels include the use of buffers, alkalis, acids, etc., and are well known to those skilled in the art.

Detailed Description Text (3):

The following is an example of a laundry detergent according to the present invention. An antioxidant, sodium thiosulfate, is incorporated into the Protease Pink (Novo 6.0T) enzyme granule at 0.05% or 500 ppm of the enzyme. Thus, this antioxidant is present at a level of 10 ppm in the cleaning composition.

CLAIMS:

1. A cleaning composition comprising:

a. ingredients useful for formulating laundry and cleaning compositions selected from the group consisting of cationic or nonionic fabric softening agents, detergent surfactants, builders, bleaching compounds, polymeric soil release agents, dye transfer inhibiting agents, polymeric dispersing agents, suds suppressors, optical brighteners, chelating agents, fabric softening clays, anti-static agents, and mixtures thereof;

b. an enzyme;

c. a perfume; and

d. from about 0.0000001% to 0.001% by weight of the composition of a stabilizer selected from the group consisting of thiosulfate, thiosulfuric acid and mixtures thereof.

4. The cleaning composition of claim 1 wherein the composition is in the form of a liquid.

6. A method of retaining the fragrance of a fragranced cleaning composition that contains ingredients useful for formulating laundry and cleaning compositions selected from the group consisting of cationic or nonionic fabric softening agents, detergent surfactants, builders, bleaching compounds, polymeric soil release agents, dye transfer inhibiting agents, polymeric dispersing agents, suds suppressors, optical brighteners, chelating agents, fabric softening clays, anti-static agents, and mixtures thereof; an enzyme, and a perfume, comprising adding from about 0.0000001% to 0.001% by weight of the composition of a stabilizer selected from the group consisting

of thiosulfate, thiosulfuric acid and mixtures thereof.

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TITLE: Cosmetic composition

Brief Summary Text (69):

The extracts can be obtained by grinding the whole of the respective plants or one or more of their parts (hereinafter referred to as "stocks" such as leaves, bark, roots, branches, seeds or fruits or nuts, and flowers or blossoms after drying them or without drying them, and then extracting them either with a solvent or by means of an extractor such as a Soxhlet's extractor at ordinary temperature or an elevated temperature. No particular limitation is imposed on the solvent used here. However, examples thereof include known solvents, such as water, primary alcohols such as methyl alcohol and ethyl alcohol, liquid polyhydric alcohols such as propylene glycol and 1,3-butylene glycol, lower alkyl esters such as ethyl acetate, hydrocarbons such as benzene and hexane, ethyl ether, and acetone. These solvents may be used either singly or in any combination thereof. As a preferable specific example of a method for extracting from the stocks, 1,000 ml of 50 v/v % aqueous ethanol are added to 100 grams of a dry ground product to conduct extraction for 3 days while sometimes stirring at room temperature. The resultant extract is filtered, and the filtrate is left at rest for 3 days at 5.degree. C. and then filtered again, thereby obtaining a supernatant. Although the vegetable extract obtained under the above conditions may be used in the form of a solution as extracted, it may be used after treating it by concentration, filtration, drying and/or the like as needed.

Brief Summary Text (83):

In the case of tuberose, the collection of the acid polysaccharide can be conducted, for example, in accordance with the following tissue culture process. Namely, a part of tuberose, such as blossoms, is used as an explant, and 10.sup.-5 M auxin and 10.sup.-4 M cytokinin are added as plant hormones to a Linsmaier-skoog basal medium. Further, 3% saccharose is added as a carbon source. After the thus-prepared medium is used to derive callus, subculture is conducted, and a liquid medium composed of the same components as those used in the callus-culture medium is used to conduct shaking culture. Thereafter, cells are removed from the culture solution by centrifugation, filtration or the like, and the remaining culture solution is concentrated by means of a rotary evaporator or the like. The resultant concentrate is added with a solvent such as ethanol or acetone to precipitate the product. The precipitate is lyophilized, whereby the acid polysaccharide can be separated and collected.

Brief Summary Text (90):

When a singlet oxygen scavenger or antioxidant is incorporated as the component (F), the effect of detoxicating peroxides and active oxygen is enhanced, so that further enhanced effects in improving skin roughness, preventing the formation of wrinkles and smoothing wrinkles are achieved. It is hence preferable to incorporate such a component. Examples of such a singlet oxygen scavenger or antioxidant include carotenoides such as .alpha.-carotene, .beta.-carotene, .gamma.-carotene, lycopene, cryptoxanthin, lutein, zeaxanthin, isozeaxanthin, rhodoxanthin, capsanthin, and crocetin; 1,4-diazacyclooctane, 2,5-dimethylfuran, 2-methylfuran, 2,5-diphenylfuran, 1,3-diphenylisobenzofuran, .alpha.-tocopherol, .beta.-tocopherol, .gamma.-tocopherol, d-tocopherol, histidine, tryptophan, methionine, and alanine or alkyl esters thereof; tannins such as dibutylhydroxytoluene, butylhydroxyanisole, ascorbic acid, tannic acid, epicatechin, epicarocatechin, epicatechin gallate, and epicarocatechin gallate; flavonoids such as rutin; enzymes such as superoxide dismutases, catalases, glutathione peroxidases, and glutathione reductases; and Ennds, peralchin, platonin, and capsachin.

Brief Summary Text (120):

The skin cosmetic compositions according to the present invention may further contain surfactants as needed. As such a surfactant, any of nonionic surfactants, anionic surfactants, and amphoteric surfactants may be suitably used.

Brief Summary Text (121):

Examples of the nonionic surfactants include polyoxyethylene alkyl ethers, polyoxyethylene alkyl phenyl ethers, polypxyethylene fatty acid esters, sorbitan fatty acid esters, polyoxyethylene sorbitan fatty acid esters, polyoxyethylene sorbitol fatty acid esters, fatty acid nonoglycerides, polyoxyethylene hardened castor oil, polyoxyethylene hardened castor oil alkylsulfates, polyoxyethylene alkylsulfates, polyglycerol fatty acid esters, sucrose fatty acid esters, glycerol fatty acid esters, alkylphosphates, polyoxyethylene alkyl phosphates, alkali metal salts of fatty acids, and alkyl glyceryl ethers. Among these, glyceryl ethers represented by the following general formula (18): ##STR18##

Brief Summary Text (124):

Examples of the anionic surfactants include linear or branched alkylbenzenesulfonates, linear or branched alkyl (or alkenyl) ether sulfates, alkyl- or alkenylsulfates having an alkyl or alkenyl group, olefinsulfonate, alkanesulfonates, unsaturated fatty acid salts, alkyl (or alkenyl) ether carboxylates, .alpha.-sulfo-fatty acid salts or esters having an alkyl or alkenyl group, N-acylamino acid type surfactants having an acyl group and a free carboxylic acid residue, and mono- or diphosphate type surfactants having an alkyl or alkenyl group.

Brief Summary Text (125):

Examples of the amphoteric surfactants include imidazoline type amphoteric surfactants having an alkyl, alkenyl or acyl group, and carbobetaine, amidobetaine, sulfobetaine, hydroxysulfobetaine and amidosulfobetaine type amphoteric surfactants.

Brief Summary Text (126):

These surfactants may be used either singly or in any combination thereof. When these surfactants are incorporated, they may preferably be incorporated in a proportion of 0.01 to 20%, more preferably 0.1 to 5%, based on the total weight of the composition.

Brief Summary Text (127):

The skin cosmetic compositions according to the present invention may further contain oily substances. No particular limitation is imposed on the oily substance, and examples thereof include hydrocarbons such as solid and liquid paraffins, vaseline, crystal oil, ceresin, ozocerite, montan wax, squalane and squalene; ester oils such as eucalyptus oil, hardened palm oil, coconut oil, peppermint oil, evening primrose oil, beeswax, camellia oil, almond oil, cacao oil, castor oil, sesame oil, macadamia nut oil, sunflower oil, peanut oil, avocado oil, beef tallow, lard, horse fat, yolk fat, olive oil, carnauba wax, lanolin, hydrogenated lanolin, jojoba oil, glyceryl monostearate, glyceryl distearate, glyceryl monooleate, myristyl palmitate, cetyl palmitate, cetyl 16-hydroxypalmitate, cetyl isooctanoate, isopropyl palmitate, isobutyl palmitate, isopropyl stearate, butyl stearate, isocetyl stearate, isopropyl myristate, 2-octyldodecyl myristate, hexyl laurate, isopropyl laurate, decyl oleate, neopentylglycol caprate, diethyl phthalate, myristyl lactate, diisopropyl adipate, hexadecyl adipate, cetyl myristate, myristyl lactate, diisostearyl malate, diisopropyl adipate, cetyl lactate, 1-isostearyl-3-myristoylglycerol, cetyl 2-ethylhexanoate, 2-ethylhexyl palmitate, neopentylglycol di-2-ethylhexanoate, 2-octyldodecyl oleate, glycerol triisostearate, glyceryl di-p-methoxycinnamate-mono-2-ethylhexanoate, pentaerythritol tetraesters, glycerol triesters, and glycerol tri-2-ethylhexanoate; higher alcohols such as benzyl alcohol, isocetyl alcohol, isostearyl alcohol, behenyl alcohol, hexadecyl alcohol, phenylethyl alcohol, cetanol, stearyl alcohol, oleyl alcohol, 2-octyldodecanol, palmityl alcohol, and 2-hexyldecanol; and phospholipids, naturally extracted sphingosine derivatives and synthetic substances thereof (for example, glycosyl ceramides, glactosyl ceramides, ceramides, etc.). These oily substances may be used either singly or in any combination thereof.

Brief Summary Text (139):

The skin cosmetic compositions according to the present invention may further contain a pH adjustor. No particular limitation is imposed on such pH adjustor. However, examples thereof include metal hydroxides such as sodium hydroxide, potassium hydroxide and lithium hydroxide, triethanolamine, isopropanolamine, diisopropanolamine, urea, .epsilon.-aminocarponic acid, sodium pyrrolidone carboxylate, sodium hydrogenphosphate, and betaines such as glycine betaine and lysine betaine.

Brief Summary Text (140):

The skin cosmetic compositions according to the present invention are preferably adjusted to a pH within a range of 2 to 11, particularly 3 to 10.

Brief Summary Text (143):

No particular limitation is imposed on the proportions of the components (A) and (B) in the hair cosmetic compositions according to the present invention so far as the proportions fall within the above ranges. When incorporated in shampoos, their proportions are each preferably about 0.001 to 5%, based on the total weight of the composition. When incorporated in rinses, treatments, conditioners, and the like, their proportions are each preferably about 0.1

to 20%, based on the total weight of the composition. When incorporated in hair liquids, hair tonics and the like, their proportions are each preferably about 0.01 to 5%, based on the total weight of the composition.

Brief Summary Text (144):

In the hair cosmetic compositions according to the present invention, surfactants may be incorporated when the compositions are provided as shampoos, hair rinses, hair conditioners, hair treatments and the like. Examples of such surfactants include anionic surfactants, amphoteric surfactants, nonionic surfactants and cationic surfactants. As examples of the anionic surfactants and amphoteric surfactants, may be mentioned the same surfactants as those incorporated into the above-described skin cosmetic compositions.

Brief Summary Text (145):

Examples of the nonionic surfactants include polyoxyalkylene alkyl (or alkylene) ethers, polyoxyethylene alkyl phenyl ethers, polyoxypropylene alkyl (or alkylene) ethers, polyoxybutylene alkyl (or alkylene) ethers, nonionic surfactants obtained by adding ethylene oxide and propylene oxide, or ethylene oxide and butylene oxide, higher fatty acid alkanolamides or alkylene oxide adducts thereof, sucrose fatty acid esters, fatty acid monoglycerol esters, and alkylamine oxides.

Brief Summary Text (146):

Examples of the cationic surfactants include mono- or di-long-chain-alkyl quaternary ammonium salts.

Brief Summary Text (147):

Examples of counter ions to the anionic residues of these surfactants include alkali metal ions such as sodium and potassium, alkaline earth metal ions such as calcium and magnesium, ammonium ion, and alkanolamines having 1 to 3 alkanol groups having 2 or 3 carbon atoms (for example, monoethanolamine, diethanolamine, triethanolamine and triisopropanolamine). Examples of counter ions to the cationic residues include halogen ions such as chlorine, bromine and iodine, and metasulfate and saccharinate ions.

Brief Summary Text (148):

When used in the shampoos and the like, anionic surfactants such as alkyl ether sulfates, alkylsulfates and olefinsulfonates among these surfactants are particularly preferred as principal surfactants. Preferable examples thereof include sodium polyoxyethylene lauryl ether sulfate (average number of moles of ethylene oxide added: 2 to 3), triethanolamine laurylsulfate and sodium .alpha.-olefinsulfonate (average number of carbon atoms: 12 to 14).

Brief Summary Text (149):

When used in the shampoos and the like, these surfactants are incorporated in a proportion of 5 to 30%, preferably 10 to 20%, in total, based on the total weight of the composition. When used in the hair rinses, hair treatments, hair conditioners and the like, the nonionic or cationic surfactants are incorporated in a proportion of 0.1 to 50%, preferably 0.5 to 20%, based on the total weight of the composition.

Brief Summary Text (156):

As the oils and fats, there may be used those routinely employed. Examples

thereof include liquid paraffin, glycerides, higher alcohols, lanolin derivatives, esters and higher fatty acids. As the glycerides, monoglycerides derived from saturated or unsaturated and linear or branched fatty acids having 12 to 24 carbon atoms are used. Among these oils and fats, higher alcohols having a linear or branched alkyl or alkenyl groups having 12 to 26 carbon atoms are particularly preferred. Preferable specific examples thereof include cetyl alcohol, stearyl alcohol, arachidic alcohol, behenyl alcohol, caranerbil alcohol and ceryl alcohol.

Brief Summary Text (158):

When the hair cosmetic composition is provided as a hair liquid or hair tonic, a nonionic surfactant may be used in combination with the components (A) and (B) Examples of this nonionic surfactant include the same surfactants as those incorporated in the above-described skin cosmetic compositions.

Brief Summary Text (159):

It is preferable to incorporate the nonionic surfactant in a proportion of 0.01 to 20%, particularly 0.1 to 5%, based on the total weight of the composition.

CLAIMS:

17. The composition according to claim 6, wherein said component (F), the singlet oxygen scavenger or antioxidant, is selected from the group consisting of carotenes, tocopherols, ascorbic acid, tannic acid, epicatechin gallate, and epicarocatechin gallate, and is present in an amount of 0.001 to 5 wt. %, based on the total weight of said composition.



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L20: Entry 7 of 7

File: USPT

Nov 8, 1988

DOCUMENT-IDENTIFIER: US 4783283 A

**\*\* See image for Certificate of Correction \*\***TITLE: Cleaning compositionsBrief Summary Text (13):

the weight ratio of a:b lying in the range from 2.5:1 to 10:1 said composition exhibiting a zero shear viscosity of at least 500 mPa.sec at 10.degree. C., a Brookfield viscosity of less than 500 mPa sec using a No. 3 spindle at 100 rpm at 20.degree. C., and a modal relaxation time of 0.5 secs maximum at 10.degree. C.

Detailed Description Text (11):

The Brookfield viscosity at 20.degree. C. using the No. 3 spindle at 100 ppm should not exceed about 500 mPa sec and is preferably less than about 400 mPa sec, normally in the range from about 200 to about 350 mPa sec, and is a reflection of the ease of dispensing of the composition from its storage container. Whilst a measure of thickness is believed to be aesthetically desirable, high Brookfield viscosities (i.e. >500 mPa sec) have been found to be less acceptable to consumers.

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L6: Entry 33 of 40

File: USPT

Nov 17, 1998

DOCUMENT-IDENTIFIER: US 5837065 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Concentrated all-purpose light duty liquid cleaning composition and method of use

Brief Summary Text (16):

In the compositions of the present invention, it has been surprisingly found that a highly concentrated cleaning system which exhibits dilutability, homogeneity in solution, excellent cleaning performance, fast evaporation, limited streaking and acceptable flash point can be prepared without using a builder by combining substantially high percentages of at least one anionic surfactant, at least one nonionic surfactant and a glycol ether solvent. The composition of the present invention also allows the end user to dilute the composition to the preferred strength from a hand-held sprayer or in a bucket application. It is noted that while the compositions of the present invention can be used in a variety of cleaning applications including laundry care, hard surface cleaning and dishwashing applications, the compositions of the present invention are most often used as an all-purpose light duty spray and wipe household hard surface cleaning composition.

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L22: Entry 9 of 20

File: USPT

Nov 19, 1996

DOCUMENT-IDENTIFIER: US 5575864 A

TITLE: Method for cleaning a hard surface with an all-purpose liquid cleaning composition

Abstract Text (1):

A method for cleaning a hard surface with concentrated all-purpose liquid cleaning compositions that contain high levels of surfactants and solvents and which exhibit improved cleaning performance and homogeneity in solution. A preferred formulation incorporates an actives systems of a three component mixture: an anionic surfactant such as alkyl ethoxy sulfates, alkyl ethoxy carboxylates and mixtures thereof, a nonionic surfactant such as fatty alcohol ethoxylates, nonylphenol ethoxylates, alkylpolyglycosides and mixtures thereof, a glycol ether solvent and optional ingredients to provide a concentrated cleaning composition which can be diluted to the desired strength.

Brief Summary Text (2):

The present invention is directed to concentrated light duty all-purpose liquid cleaning compositions, more particularly to concentrated light duty all-purpose spray and wipe liquid cleaning compositions which can be diluted by the end user to the end user's preferred strength. A method for using such compositions is also disclosed.

Brief Summary Text (4):

There has long been a desire to produce concentrated cleaners for consumer use. Concentrated cleaners provide high strength cleaning for difficult soils, economical solutions when diluted and minimize packaging and transportation costs. In some cleaning applications, such as heavy duty laundry applications, concentrated formulas based on high surfactant levels are known in the art and have been prepared successfully with the use of suitable surfactants and hydrotropes. Likewise, powder formulations with high concentrations are known in the art and are typically made through the use of agglomeration or similar technology.

Brief Summary Text (5):

Similarly, light duty all-purpose cleaners are known in the art. For example, U.S. Pat. No. 5,230,823 discloses a light duty liquid cleaning composition using extremely pure alkyl ethoxy carboxylates and optionally includes a cosurfactant and a suds booster. U.S. Pat. No. 4,627,931 discloses a diluted and concentrated composition for hard surface cleaning which includes a nonionic surfactant and an organic solvent in combination with a builder. U.S. Pat. No. 3,882,038 discloses a diluted and concentrated composition containing a surfactant, a builder and glycol ether solvents. However, highly

concentrated all-purpose spray and wipe cleaners which can be diluted by the end user to the end user's preferred strength are not known in the art. This is due in part to the need in a consumer product of several characteristics such as dilutability, wettability of surfaces and soils, no streaking, quick evaporation, good cleaning characteristics and the ability to meet safety standards for household products. The typical approach to these all-purpose spray and wipe cleaners is to make the product in low concentrated form with the use of moderate levels of water-soluble solvents in combination with low levels of cosurfactants and builders.

Brief Summary Text (6):

Problems often occur when attempting to produce an all-purpose spray and wipe cleaner in highly concentrated form. Solvents which evaporate quickly typically have low flash points. On increasing the concentration of these solvents, compositions with unacceptably low formula flash points are produced. Also, typically, solvents which exhibit high soil solvency tend to have lower evaporation rates which can result in products which are difficult for the consumer to use and can leave streaks on the surfaces being cleaned. Therefore, above certain solvent concentrations, it has been difficult to formulate a concentrated product which meets consumer acceptability.

Brief Summary Text (16):

In the compositions of the present invention, it has been surprisingly found that a highly concentrated cleaning system which exhibits dilutability, homogeneity in solution, excellent cleaning performance, fast evaporation, limited streaking and acceptable flash point can be prepared without using a builder by combining substantially high percentages of at least one anionic surfactant, at least one nonionic surfactant and a glycol ether solvent. The composition of the present invention also allows the end user to dilute the composition to the preferred strength from a hand-held sprayer or in a bucket application. It is noted that while the compositions of the present invention can be used in a variety of cleaning applications including laundry care, hard surface cleaning and dishwashing applications, the compositions of the present invention are most often used as an all-purpose light duty spray and wipe household hard surface cleaning composition.

Detailed Description Text (3):

In the second preferred embodiment, the method for cleaning hard surfaces with a concentrated all-purpose cleaning composition comprises the steps of diluting the concentrated cleaning composition with water in a ratio of about 1:1 to about 1:20 cleaning composition to water in a strength acceptable to the end user, applying the liquid cleaning composition to the surface to be cleaned and wiping the liquid cleaning composition from the surface. The principle ingredients are included in the highly concentrated all-purpose liquid cleaning composition in the following percentage ranges:

Detailed Description Text (35):

The concentrated all-purpose liquid cleaning composition can be used by itself as a concentrated product and applied directly to the area to be cleaned or first diluted with water to the end user's preferred strength. This dilution can take place either in a bucket or other containment device or during the packaging process when being put into a spray-type cleaner. Most preferably, the dilution by the end user is in a ratio of about 1:1 to about 1:20 of cleaning composition to water and the dilution takes place in a

spray cleaner application such as that found in U.S. Pat. No. 5,152,461 and patent application Ser. No. 07/865,001, both of which are herein incorporated by reference. When using this latter method, the all-purpose liquid cleaning composition is placed in its concentrated form in a bottle and attached to the sprayer device containing another bottle filled with water. The end user simply manipulates the sprayer's concentration ratio, applies the cleaning composition to the surface to be cleaned and thereafter wipes the cleaning composition from said surface.

#### CLAIMS:

1. A method for cleaning a hard surface with an all-purpose liquid cleaning composition comprising the steps of:

1) providing a concentrated all-purpose homogeneous liquid cleaning composition free of builder salts consisting essentially of:

(a) from about 1% to about 20% of at least one anionic surfactant selected from the group consisting of alkyl ethoxy sulfates, alkyl ethoxy carboxylates and mixtures thereof;

(b) from about 1% to about 20% of at least one nonionic surfactant selected from the group consisting of fatty alcohol ethoxylates, nonylphenol ethoxylates, alkylpolyglycosides and mixtures thereof; and,

(c) from about 20% to about 60% of a solvent selected from the group consisting of water-soluble glycol ethers and mixtures thereof;

2) applying said liquid cleaning composition to the surface to be cleaned and;

3) wiping from said surface said liquid cleaning composition.

2. The method for cleaning hard surfaces of claim 1 wherein the anionic surfactant is sodium C.sub.12 -C.sub.15 parath-7 carboxylate.

3. The method for cleaning hard surfaces of claim 1 wherein said nonionic surfactant is an alkylpolyglycoside having a C.sub.9 -C.sub.10 alkyl group with an average carbohydrate unit per molecule of 1.5 to 2.7.

4. The method of cleaning hard surfaces of claim 1 wherein said solvent is selected from the group consisting of ethylene glycol n-butyl ether, propylene glycol methyl ether, propylene glycol propyl ether, propylene glycol n-butyl ether and mixtures thereof.

5. A method for cleaning a hard surface with an all-purpose liquid cleaning composition comprising the steps of:

a. providing a concentrated all-purpose homogeneous liquid cleaning composition free of builder salts consisting essentially of:

i. from about 1% to about 20% of at least one anionic surfactant selected from the group consisting of alkyl ethoxy sulfates, alkyl ethoxy carboxylates and mixtures thereof;

ii. from about 1% to about 20% of at least one nonionic surfactant selected from the group consisting of fatty alcohol ethoxylates, nonylphenol ethoxylates, alkylpolyglycosides and mixtures thereof; and

iii. from about 20% to about 60% of a solvent selected from the group consisting of water-soluble glycol ethers and mixtures thereof;

b. diluting the concentrated cleaning composition with water in a ratio of concentrated cleaning composition to water from about 1:1 to about 1:20;

c. applying the diluted liquid cleaning composition to the surface to be cleaned and;

d. wiping from the surface the liquid cleaning composition.

6. The method of cleaning hard surfaces of claim 5 wherein the anionic surfactant is sodium C.sub.12 -C.sub.15 pareth-7 carboxylate.

7. The method of cleaning hard surfaces of claim 6 wherein the nonionic surfactant is an alkylpolyglycoside having a C.sub.9 -C.sub.10 alkyl group with an average carbohydrate unit per molecule of 1.5 to 2.7.

8. The method of cleaning hard surfaces of claim 5 wherein the solvent is selected from the group consisting of ethylene glycol n-butyl ether, propylene glycol methyl ether, propylene glycol propyl ether, propylene glycol n-butyl ether and mixtures thereof.

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L4: Entry 11 of 38

File: USPT

May 6, 2003

DOCUMENT-IDENTIFIER: US 6559110 B1

TITLE: Syndet bar soap having an acidifying agent

Abstract Text (1):

A bar soap preparation having enhanced antibacterial and microbial properties which contains between 0.1 weight % and 95 weight % of at least one anionic surfactant; and at least one acidifying agent present in an amount sufficient to impart a pH of below 5.0. The bar soap provides microbial protection resulting from its rapid microbicidal action.

Brief Summary Text (3):

The present intention relates to the preparation of synthetic detergent (syndet) bar soap composition useful for washing and cleaning hands and other body parts for preventing the risk of infections caused by microorganisms which can also be efficaciously employed on other sanitizable animate and inanimate surfaces. More particularly, this invention pertains to the preparation of acidic syndet bar soap compositions and the material which results therefrom.

Brief Summary Text (5):

Typically soaps are prepared under conditions at above neutral pH. Thus the pH may be neutral or alkaline during preparation. At such pH levels, microorganisms can remain viable on the contaminated soaps. These can be transferred to the surface being treated by the soap. Additionally, spoilage microorganisms can multiply on the soap. Antimicrobial agents are often incorporated into such soaps to prevent microbial growth. However, such antimicrobial agents do not exhibit full antimicrobial potential due to the neutral or alkaline pH of the surrounding environment.

Brief Summary Text (6):

Synthetic detergent (syndet) bar soaps, are based on detergency of surface-active agents (synthetic detergents) instead of alkali salt or fatty acids used in conventional soaps. Because syndet soaps clean and lather like conventional soaps, general public often refers to syndet type compositions simply as soaps. Surface active agents incorporated in hand and toilet soaps remove soil and dirt from the surface of the skin or hair along with some microorganisms. However, these soaps may not kill microorganisms. Bar soaps may be contaminated with bacteria and even transmit these microorganisms during their use. Thus the use of soaps without antibacterial properties may even add microorganisms to the skin surfaces and be a vector for transmission of infections. Thus, these soaps cannot be relied upon to prevent spread of infective germs.

Brief Summary Text (7):

Antibacterial and bactericidal soaps used for personal and health care applications typically are soaps which incorporate various antimicrobial agents in addition to the surface-active agents at pH greater than 7.0 (neutrality). Antibacterial agents are often incorporated in soaps to prevent growth of microorganisms in the soap rather than as effective agents for reducing or eliminating germs on the surfaces being cleaned.

Brief Summary Text (9):

These materials typically are prepared and employed in compositions at neutral to alkaline pH. Fatty acid soaps must be prepared at neutral or alkaline conditions in order preserve the cleaning properties of the given soap. Synthetic detergent soaps are prepared in a similar manner as it has been held that neutral or alkaline pH levels are required to achieve proper cleaning characteristics of the soap material.

Brief Summary Text (11):

Anionic surfactants have been proposed for use in cleaning compositions as well as in sanitizers or disinfecting solutions. However, for use as soap, the anionic surfactant must be present in sufficient amount to generate foam for cleaning purposes, such as washing hands and for general personal hygiene, facial conditioning, and the like. The use of high concentration anionic surfactants and other surfactant containing compositions at low pH has been held to result in damage to the skin, dryness, cracking, chapping, and irritation of the skin. Thus, anionic surfactants at low pH have not been used as microbicidal and sanitizing soaps on skin and body surfaces.

Brief Summary Text (15):

The present invention is a synthetic detergent bar soap and method for making the same which is prepared under acidic conditions to enhance or provide antimicrobial properties to the material thus prepared. The material thus prepared exhibits at least one of the following advantages: a) under acidic conditions, the soap composition exhibits antimicrobial properties inhibiting survival and growth of microorganisms on the soap surface and on contact surfaces; b) the activity of antibacterial agents used in the soap can also be enhanced under acidic conditions; c) addition of alpha hydroxy-acids can also have beneficial effect in rejuvenating skin.

Brief Summary Text (17):

The soap composition consists essentially of: a) an anionic surfactant present in an amount in the range from about 0.10 weight % to about 95.0 weight % based on the total weight of the concentrate composition; and b) an acidifying agent present in an amount sufficient to provide a pH below 5.0.

Brief Summary Text (19):

The present invention is predicated on the unexpected discovery that an effective synthetic detergent bar soap can be prepared under acidic conditions which will exhibit antimicrobial characteristics. The syndet bar soap composition is based on (a) cleaning, surface active and sudsing properties of anionic surface active agent or agents, (b) enhancement of antimicrobial properties under acidic conditions, and (c) ready and effective incorporation of miscellaneous ingredients used to impart certain antibacterial, physical properties such as emollient, lubricating, foam boosting, binding, coloring, anti-cracking, perfuming, brightening,



transparency, whitening, thixotropic, solubilizing, cleaning, antioxidant, skin nutritive as well as other organoleptic properties.

Brief Summary Text (20):

The soap composition of the present invention consists essentially of: (a) at least one anionic surfactant present in an amount in the range from about 0.10 weight % to about 95 weight % based on the total weight of the concentrate composition; and (b) at least one acidifying agent selected from acids of the group which includes acetic acid, adipic acid, ascorbic acid, benzoic acid, citric acid, dehydroacetic acid, erythorbic acid, fumaric acid, glutaric acid, gluconic acid, hyaluronic acid, hydroxyacetic acid, glycolic acid, lactic acid, malic acid, salicylic acid, sorbic acid, succinic acid, tannic acid, tartaric acid, sulfuric acid, phosphoric acid, nitric acid, hydrochloric acid, sulfamic acid, carboxylic acid polymers, homo- or hetero-polymerized alpha-hydroxy carboxylic acids including poly lactic acid and poly lactic-glycolic acid and mixtures of two or more said acids, said acidifying agent being present in the concentrate composition in an amount sufficient to provide a pH below 5.0 in aqueous solution.

Brief Summary Text (23):

The anionic surfactant may be present as a free acid, ester or salt form (e.g., the ammonium, sodium, potassium, calcium and magnesium salts) of a suitable anionic surfactant. Suitable anionic surfactants include at least one of the following: (a) C.sub.6 -C.sub.18 alkyl- and alkenyl-sulfates; (b) C.sub.6 -C.sub.18 alkyl- and alkenyl-ether sulfates; (c) C.sub.6 -C.sub.16 alkyl diphenyl ether disulfonates; (d) C.sub.4 -C.sub.18 fatty acid isethionates; (e) C.sub.6 -C.sub.18 alkyl- and alkenyl sulfonates; (f) dialkyl- and dialkenyl sulfosuccinates in which the alkyl or alkenyl groups independently contain from six to eighteen carbon atoms; (g) alkyl benzene sulfonates in which alkyl group contains from C.sub.4 -C.sub.18 carbon atoms; (h) alkyl naphthalene sulfonates in which alkyl group contains from one to six carbon atoms; (i) the mono-n-alkyl and mono-n-alkenyl acyl esters of C.sub.2 -C.sub.4 hydroxylated monocarboxylic acids in which the alkyl or alkenyl group contains from six to eighteen carbon atoms; (j) the mono-n-alkyl and mono-n-alkenyl alkyl esters of C.sub.2 -C.sub.4 dicarboxylic acids in which the alkyl or alkenyl group contains six to eighteen carbon atoms; and (k) C.sub.4 -C.sub.16 fatty alcohol sulfoacetates.

Brief Summary Text (28):

Preferred anionic surfactants for the compositions include free acids or the ammonium, sodium, potassium, calcium or magnesium salts of 1) alpha olefin (C.sub.14 -C.sub.16) sulfonic acid; 2) C.sub.4 -C.sub.18 fatty acid isethionic acid; 3) C.sub.4 -C.sub.18 fatty alcohol sulfoacetic acid; 4) decyl lactic acid; 5) lauryl sulfuric acid, and 6) 1,4-dihexyl sulfosuccinic acid.

Brief Summary Text (29):

The anionic surfactant may be present in any amount between about 0.10 weight % to 95.0 weight %. The specific amount employed would be determined by the specific use to which the soap is put and desirable characteristics such as lather formation, cleansing power, etc. to be achieved.

Brief Summary Text (30):

The acidifying agent is present in an amount sufficient to impart a pH at or

below 5.0 and may be either organic or inorganic. The acidifying agent may be used individually or in any suitable combination of acids. The acidifying acid may be at least one of the following: includes one or more than one of the following: acetic acid, adipic acid, ascorbic acid, benzoic acid, citric acid, dehydroacetic acid, erythorbic acid, fumaric acid, glutaric acid, gluconic acid, hyaluronic acid, hydroxyacetic acid, lactic acid, malic acid, salicylic acid, sorbic acid, succinic acid, tannic acid, tartaric acid, sulfuric acid, phosphoric acid, nitric acid, hydrochloric acid, sulfamic acid, carboxylic acid polymers, homo- or hetero-polymerized alpha-hydroxy carboxylic acids including poly lactic acid and poly lactic-glycolic acid.

Detailed Description Text (1):

The embodiment of the invention is illustrated by following examples, which are to be considered to be illustrative and not limitative for the concept of invention. Examples 1 and 2 show enhancement of microbicidal properties of the anionic surfactant ingredients when used in the composition of syndet bar soap.

Detailed Description Text (4):

One percent of the preparation was dissolved in neutral water. The pH of the resulting solution was tested and was found to be below 5.0. Microbicidal properties of the solution was evaluated against gram positive Staphylococcus aureus and gram negative Escherichia coli by using the Association of Analytical Chemist (AOAC) germicidal and detergent sanitizer test. The composition in Example 1 was tested for bactericidal properties essentially by the modified the AOAC (Association of Analytical Chemists) germicidal and detergent sanitizer test using Staphylococcus aureus ATCC 6538 and Escherichia coli ATCC 11229 using the procedure of Method No. 6 from the 13.sup.th Edition of the Official Methods of Analysis of the A.O.A.C., 1111 North 19.sup.th Street, Alexandria, Va. 22209. The results are presented in Table I.

Detailed Description Text (5):

As can be seen from the data collected in Table I, under acidic conditions below pH of 5.0, ingredients suitable for syndet bar soap preparation exhibit rapid antimicrobial activities useful for cleaning and disinfecting surfaces.

Detailed Description Text (8):

One percent weight of the above preparation was dissolved in neutral water. The pH of the solution was tested and was found to be below 5.0. The microbicidal properties of the solutions were evaluated against gram-positive Staphylococcus aureus and gram negative Escherichia coli by using the Association of Analytical Chemist germicidal and detergent sanitizer test. (AOAC) germicidal and detergent sanitizer test. The composition in Example II was tested for bactericidal properties essentially by the modified the AOAC (Association of Analytical Chemists) germicidal and detergent sanitizer test using Staphylococcus aureus ATCC 6538 and Escherichia coli ATCC 11229 using the procedure of Method No. 6 from the 13.sup.th Edition of the Official Methods of Analysis of the A.O.A.C., 1111 North 19.sup.th Street, Alexandria, Va. 22209. The results are presented in Table II. As can be seen from the data collected in Table II, under acidic conditions below pH of 5.0, ingredients suitable for syndet bar soap preparation exhibit rapid antimicrobial activities useful for cleaning and disinfecting surfaces.

Detailed Description Text (14):

Syndet soap bar was prepared as explained in example 3. To check the pH of the formulated syndet bar, 1 g of the product was emulsified with deionized neutral water to measure the pH. The pH value of both these products was below 5.0.

## CLAIMS:

1. A bar soap preparation having enhanced antibacterial and microbial properties, the bar soap consisting of: (A) from about 0.1 weight % to about 95 weight % of at least one anionic surfactant based on the total weight of the preparation; (B) at least one acidifying agent present in an amount sufficient to impart a pH of below 5.0, in aqueous solution the acidifying agent being at least one acidifying agent selected from the group consisting of acetic acid, adipic acid, benzoic acid, citric acid, dehydroacetic acid, erythorbic acid, fumaric acid, glutaric acid, gluconic acid, hyaluronic acid, hydroxyacetic acid, lactic acid, malic acid, sorbic acid, succinic acid, tannic acid, tartaric acid, sulfuric acid, phosphoric acid, nitric acid, hydrochloric acid, sulfamic acid, poly lactic acid or poly lactic-glycolic acid, wherein microbial protection results from reduction of the microbial population; (C) at least one antibacterial agent selected from the group consisting of benzoic acid salts, esters of benzoic acid, sorbic acid salts, esters of sorbic acid, alkyl esters of para hydroxy benzoic acid, chlorohexidine, imidazolidinyl urea, isothiazolin compounds, triclosan, dehydroacetate, o-phenyl phenol, quaternium compounds, boric acid, formaldehyde solution, butylated hydroxyanisole, butylated hydroxy toluene, fatty acids, fatty acid salts and antibacterial peptides; (D) at least one lubricating agent selected from the group consisting of xanthan, arabic, ghatti, carrageenan gums, starch, cellulose, alginic acid, dextrans, starch and cellulose polymers, acrylates, carboxylates, sulfated polymers, polaxomers, and silicone based compounds, wherein the at least one skin conditioning agent is present in an amount present between 0.001% by weight and 5.0% by weight; (E) at least one skin conditioning agent selected from the group consisting of aloe Vera, sea weed extracts, hydrolyzed proteins products, lanolin, lanolin esters, vitamins A, vitamin C, vitamin D, and wherein the at least one skin conditioning agent is present in an amount present between 0.001% by weight and 5.0% by weight; (F) at least one coloring agent selected from the group consisting of which includes natural carmine, chlorophyll, curcumin, annatto, plant based colors, caramel color, and FD&C coloring agents, wherein the coloring agent is present in an amount less than 5.0% by weight; (G) at least one moisturizing agent selected from the group consisting of hyaluronomic acid, maize amino acids, soluble collagen, glycerine, sorbitol, silk amino acids, polyethylene glycol, panthenol and gluconate, wherein the moisturizing agent is present in an amount less than 5.0% by weight; (H) at least one binding and anti-cracking agent selected from the group consisting of natural gums, polysaccharides, fatty alcohol, paraffin, lanolin, hydrogenated oils, glycerides, wherein the binding and anti-cracking agent is present in an amount less than 5.0% by weight; (I) at least one thixotropic agent selected from the group consisting of modified gums, and synthetic polymer compounds, wherein the thixotropic agent is present in an amount less than 5.0% by weight; (J) at least one solubilizing agent selected from the group consisting of water, propylene glycol, ethyl alcohol, fatty alcohols, isopropanol, ethyl acetate, wherein the solubilizing

agent is present in an amount less than 5.0% by weight; (K) at least one emulsifying agent selected from the group consisting of lecithin, polysorbate 60, polysorbate 65, polysorbate 80, sucrose fatty acid esters and salts of stearyl 2-lactylate, wherein the emulsifying agent is present in an amount less than 5.0% by weight; (L) at least one abrasive agent selected from the group consisting of silica, plant seed coat powders and clays, wherein the abrasive agent is present in an amount less than 5.0% by weight and; (M) at least one antioxidant agent selected from the group consisting of ascorbic acid, vitamin E and flavanoids, wherein the antioxidant agent is present in an amount less than 5.0% by weight.

2. The bar soap of claim 1 wherein the anionic surfactant is present as either a free acid, an ester or as a salt form of at least one anionic surfactant compound.

3. The bar soap of claim 1 wherein the anionic surfactant is present as either a free acid, an ester or as a salt form of at least two different anionic surfactant compounds.

4. The bar soap composition of claim 3 wherein the anionic surfactant is at least one of the following compounds: (A) C.sub.6 -C.sub.18 alkyl- and alkenyl sulfates; (B) C.sub.8 -C.sub.18 alkyl- and alkenyl-ether sulfates; (C) C.sub.8 -C.sub.16 alkyl diphenyl ether disulfonates; (D) C.sub.4 -C.sub.18 fatty acid isethionates; (E) C.sub.6 -C.sub.18 alkyl- and alkenyl sulfonates; (F) dialkyl- and dialkenyl sulfosuccinates in which the alkyl or alkenyl groups independently contain from six to eighteen carbon atoms; (G) C.sub.6 -C.sub.18 alkyl benzene sulfonates; (H) alkyl naphthalene sulfonates in which alkyl group contains from one to six carbon atoms; (I) mono-n-alkyl and mono-n-alkenyl acyl esters of C.sub.2 -C.sub.4 hydroxylated monocarboxylic acids in which the alkyl or alkenyl group contains from six to eighteen carbon atoms; (J) mono-n-alkyl and mono-n-alkenyl acyl esters of C.sub.2 -C.sub.4 hydroxylated dicarboxylic acids in which the alkyl or alkenyl group contains six to eighteen carbon atoms; (K) mono-n-alkyl and mono-n-alkenyl alkyl esters of C.sub.2 -C.sub.4 dicarboxylic acids in which the alkyl or alkenyl group contains from six to eighteen carbon atoms; and (L) C.sub.4 -C.sub.18 fatty alcohol sulfoacetates, and mixtures of two or more said surfactants.

6. A bar soap preparation having enhanced antibacterial and microbial properties, the bar soap consisting of: (A) from about 0.1 weight % to about 95 weight % based on the total weight of at least one anionic surfactant, selected from the group consisting of alkali metal salts of alpha olefin sulfonate, alkali metal salts of cocoyl isethionate, alkali metal salts of lauryl sulfoacetate and alkali metal salts of decyl lactylate; (B) at least one acidifying agent present in an amount sufficient to impart a pH of below 5.0, the at least one acidifying agent taken from the group which includes lactic acid, citric acid, ascorbic acid, erythorbic acid, malic acid, and adipic acid, wherein microbial protection results from reduction of the microbial population on the contact surface; (C) at least one antibacterial agent selected from the group consisting of benzoic acid salts, esters of benzoic acid, sorbic acid salts, esters of sorbic acid, alkyl esters of para hydroxy benzoic acid, chlorohexidine, imidazolidinyl urea, isothiazolin compounds, triclosan, dehydroacetate, o-phenyl phenol, quaternium compounds, boric acid, formaldehyde solution, butylated hydroxyanisole, butylated

hydroxy toluene, fatty acids, fatty acid salts and antibacterial peptides; (D) at least one lubricating agent selected from the group consisting of xanthan, arabic, ghatti, carrageenan gums, starch, cellulose, alginic acid, dextrans, starch and cellulose polymers, acrylates, carboxylates, sulfated polymers, polaxomers, and silicone based compounds, wherein the at least one skin conditioning agent is present in an amount present between 0.001% by weight and 5.0% by weight; (E) at least one skin conditioning agent selected from the group consisting of aloe Vera, sea weed extracts, hydrolyzed proteins products, lanolin, lanolin esters, vitamins A, vitamin C, vitamin D, and wherein the at least one skin conditioning agent is present in an amount present between 0.001% by weight and 5.0% by weight; (F) at least one coloring agent selected from the group consisting of which includes natural carmine, chlorophyll, curcumin, annatto, plant based colors, caramel color, and FD&C coloring agents, wherein the coloring agent is present in an amount less than 5.0% by weight; (G) at least one moisturizing agent selected from the group consisting of hyaluronic acid, maize amino acids, soluble collagen, glycerine, sorbitol, silk amino acids, polyethylene glycol, panthenol and gluconate, wherein the moisturizing agent is present in an amount less than 5.0% by weight; (H) at least one binding and anti-cracking agent selected from the group consisting of natural gums, polysaccharides, fatty alcohol, paraffin, lanolin, hydrogenated oils, glycerides, wherein the binding and anti-cracking agent is present in an amount less than 5.0% by weight; (I) at least one thixotropic agent selected from the group consisting of modified gums, and synthetic polymer compounds, wherein the thixotropic agent is present in an amount less than 5.0% by weight; (J) at least one solubilizing agent selected from the group consisting of water, propylene glycol, ethyl alcohol, fatty alcohols, isopropanol, ethyl acetate, wherein the solubilizing agent is present in an amount less than 5.0% by weight; (K) at least one emulsifying agent selected from the group consisting of lecithin, polysorbate 60, polysorbate 65, polysorbate 80, sucrose fatty acid esters and salts of stearyl 2-lactylate, wherein the emulsifying agent is present in an amount less than 5.0% by weight; (L) at least one abrasive agent selected from the group consisting of silica, plant seed coat powders and clays, wherein the abrasive agent is present in an amount less than 5.0% by weight and; (M) at least one antioxidant agent selected from the group consisting of ascorbic acid, vitamin E and flavanoids, wherein the antioxidant agent is present in an amount less than 5.0% by weight.